PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION

Improvements in Closures for Receptacles Adapted to Discharge the Contents in Drops, Streams or Otherwise

I, KARL GRIENSEYSS, of Austrian Nationality, of 5, Naaffgasse, Vienna, 18, Austria, do hereby declare the nature of this invention to be as follows:—

This invention relates to closures for receptacles adapted to facilitate the discharge of the contents either by drops or in a continuous stream or otherwise as required. For this purpose, according to the invention, the receptacle is provided with a screw top either internal or external, and the closure either screws into or around the top of the receptacle, and has a seating or gland adapted to make a fluid-tight closure on the neck of the receptacle when the closure is screwed down. The closure has one or more small apertures at one side for admission of air, and an aperture at the other side, generally somewhat larger, for the escape of the contained liquid, so that when the closure is unscrewed sufficiently to unseat the gland and is tipped forwards, liquid can flow out at one side of the closure, and air can enter at the other side to replace the outflowing liquid. The closure preferably has a lateral extension on the side adjacent the liquid outlet so as to collect the liquid and allow it to form into drops from the end of the projection.

In the case of a closure screwing on the externally threaded neck of the bottle, the top of the closure simply has a disc of compressible material inside it to form a gland or seating on the neck of the bottle, and a projection towards one side in the shape of a beak for example, just over the hole through which liquid can escape. The air hole or holes at the other side require no protection. When the closure is screwed down so that the seating rests on the top of the bottle neck a completely fluid-tight and air-tight closure is provided. By slightly unscrewing the closure sufficiently to unseat the gland at the top, both the air hole and the fluid hole are exposed so that the liquid can escape in drops or a continuous stream if required.

If the closure is made to screw into an internal threaded neck of the receptacle, the gland or seating surrounds the threaded projection on the closure which extends into the neck, but otherwise the construction is similar.

If it is required to eject the liquid as a spray the closure has a tube extending downwardly from the outflow aperture and into the liquid in the receptacle, while the air hole is connected to a tube and bulb of a usual type by which air can be forced into the receptacle to eject the liquid as a spray. The rate of outflow can obviously be controlled by screwing the closure more or less away from its seating position, and more than one air hole may be provided so that one or more air holes are exposed according as the closure is screwed back more or less.

Dated this 19th day of July, 1948.
For the Applicant:
GILL, JENNINGS & EVERY,
Chartered Patent Agents,
51/52, Chancery Lane, London, W.C.2.

COMPLETE SPECIFICATION

Improvements in Closures for Receptacles Adapted to Discharge the Contents in Drops, Streams or Otherwise

I, KARL GRIENSEYSS, of Austrian Nationality, of 5, Naaffgasse, Vienna, 18, Austria, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to closures for receptacles adapted to facilitate the discharge of the contents either by drops or

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in a continuous stream or otherwise as required. For this purpose the receptacle is provided with a screw top either internal or external, and the closure either screws into or around the top of the receptacle, and has a seating or gland adapted to make a fluid-tight closure on the neck of the receptacle when the closure is screwed down. The closure has one or more small apertures at one side for admission of air, and an aperture at the other side, generally somewhat larger, for the escape of the contained liquid, so that when the closure is unscrewed sufficiently to unseat the gland and is tipped forwards, liquid can flow out at one side of the closure, and air can enter at the other side to replace the outflowing liquid. The closure has a lateral extension in the form of a nose or beak projecting over the liquid outlet and adapted to form a drop-forming nose for the issuing liquid.

In the case of a closure screwing on the externally threaded neck of the bottle, the top of the closure simply has a disc of compressible material inside it to form a gland or seating on the neck of the bottle, and a projection towards one side in the shape of a nose or beak for example, just over the hole through which liquid can escape. The air hole or holes at the other side require no protection. When the closure is screwed down so that the seating rests on the top of the bottle neck a completely fluid-tight and air-tight closure is provided. By slightly unscrewing the closure sufficiently to unseat the gland at the top, both the air hole and the fluid hole are exposed so that the liquid can escape in drops or a continuous stream if required.

If the closure is made to screw into an internal thread neck of the receptacle, the gland or seating surrounds the threaded projection on the closure which extends into the neck, but otherwise the construction is similar.

The invention is illustrated in the accompanying drawings in which:—

Figure 1 shows one form of the closure device in section, and

Figure 2 shows it in plan view;

Figure 3 shows in section the closure of Figure 1 in the closing position of the threaded neck of the receptacle, and

Figure 4 shows also in section the closure in the opened position;

Figure 5 is a similar view of a closure, which screws into the neck of a receptacle, shown in the opened position.

Referring first to Figures 1 and 4, the closure *a* has a lateral extension or nose *b* projecting over the liquid outlet, on which the issuing liquid will form drops, and has a washer *c* adapted to screw down upon the threaded neck *d* of a bottle or other receptacle. At one side of the closure is a small opening *e* intended to serve as an air inlet, while on the other side is a larger opening *f* through which the liquid from the receptacle can flow out. In the drawings the device is shown somewhat enlarged and the holes would generally be smaller if the closure was to be used as a dropping stopper for a bottle.

It will be seen that when the closure is screwed down on the bottle neck the washer *c* makes a fluid-tight joint with the top of the bottle neck and no liquid can escape. When the closure is unscrewed to a small extent, liquid can flow out slowly through the aperture *f*, and may form drops on the nose *b*, while air enters at *e* to replace the liquid in the bottle. The rate of out-flow is controlled by screwing the closure more or less back from the neck of the bottle.

In Figure 5 the construction is similar except that in this case the closure has an externally threaded stem *g* adapted to screw into the internally threaded neck *h* of a receptacle, while the washer *c* which bears against the top of the bottle neck, is an annular washer surrounding the threaded stem *g* at the top thereof.

Obviously, more than one air hole may be provided if desired, and more than one outlet for liquid, but a single air hole and a single liquid outlet opposite thereto generally satisfies all requirements.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A screw closure for liquid receptacles having a portion thereof adapted to screw upon or into the neck of the receptacle, and having at least two apertures, one adapted to admit air and the other to permit liquid to flow out when the closure is screwed back to some extent from its closing position, the screw closure member having a lateral extension in the form of a nose or beak projecting over the outflow aperture for liquid, adapted to form a drop-forming nose for the issuing liquid.

2. Screw closures for liquid receptacles constructed and adapted to be used substantially as described with reference to Figures 1 to 4 or Figure 5 of the accompanying drawings.

Dated this 19th day of July, 1949.

For the Applicant:
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FIG. 1.

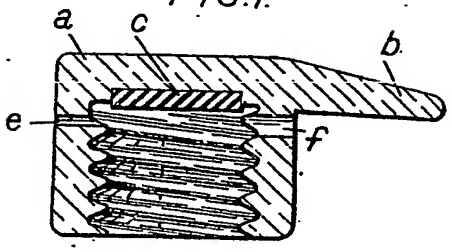


FIG. 2.

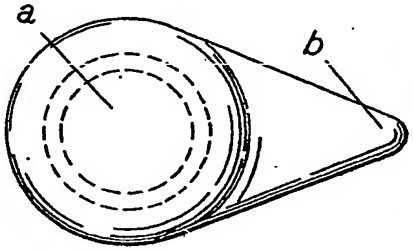


FIG. 3.

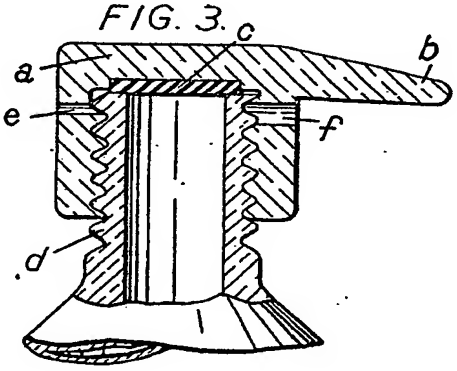


FIG. 4.

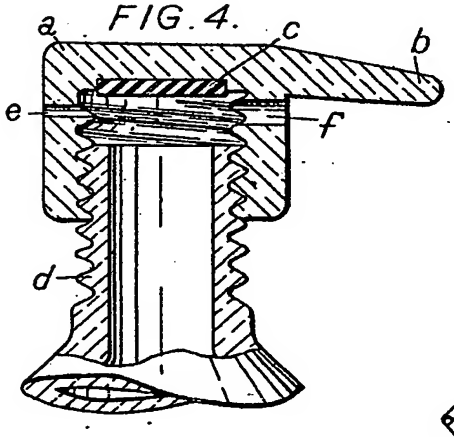
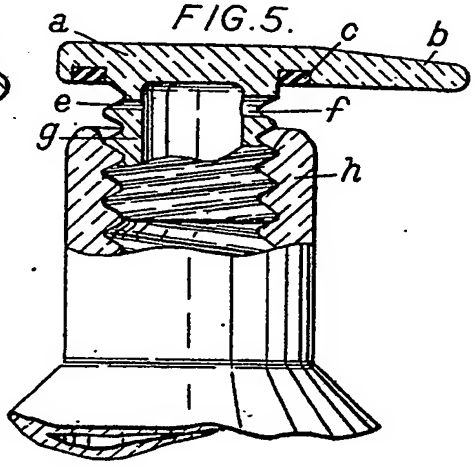


FIG. 5.



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